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Def Doc 500-a-35

JAPANESE TRADE STUDIES

Special Industry Analysis
No. 35

RUBBER AND RUBBER MANUFACTURES

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Foreign Economic Administration
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PURL: <http://www.legal-tools.org/doc/15e741/>

October 1945

Revised
ad 7/1945

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NOTE

The present report is one of a number which were prepared during 1944 and 1945 for the Foreign Economic Administration by members of the staff of the United States Tariff Commission. Owing to the fact that the Foreign Economic Administration to obtain this material as quickly as possible, the reports were not reviewed by the Tariff Commission. All statements of fact or opinion in these reports are attributable to the individual staff members who prepared them. The reports were originally intended for confidential use of Government agencies and are now being made public with the consent of the Foreign Economic Administration.

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RUBBER AND RUBBER MANUFACTURES

Introduction and summary

There is no significant production of crude rubber within the Japanese Empire. A number of attempts to create rubber plantations in empire areas have failed; Japan proper is, therefore, entirely dependent on external sources of supply. Japanese interests controlled plantations in Sumatra, Java, Malaya, Borneo, and elsewhere, and probably one-fourth to one-third of the rubber consumed in Japan was produced on these plantations. Japan is nearer the principal sources of crude rubber than any other consuming country. There has been a small production of low-quality reclaimed rubber in Japan and one or two factories were producing low-quality synthetic rubber in 1938 and 1939. The imports of crude rubber into Japan have been substantial, amounting to as much as 70,000 tons in one year. Imports have been valued as much as 100 million yen, although the years when values were highest did not necessarily correspond with those when the largest quantities were imported, because of wide fluctuation in prices. Some crude rubber has been reexported from the mainland to Korea where a small rubber products industry has been organized. The total amounts of crude rubber imported by Japan have accounted for somewhat less than 5 percent of the value of imports of all commodities.

In the late 1930's imports of crude rubber were supplemented by large imports of scrap rubber and some imports of reclaimed rubber. Scrap and reclaimed rubber came mostly from the United States and were used in the production of civilian goods, releasing new rubber for military equipment.

During the first World War the shortage of rubber products in Japan, formerly supplied almost entirely by imports, made the establishment of a crude rubber processing industry in Japan advisable if not imperative. One plant has been erected in 1909 but prior to 1915 production was very small. A number of small firms and one or two larger ones were organized in 1915 to produce automobile tires and equipment and rubber footwear. Some effort was made to expand the industry during the 1920's and Japanese imports of finished rubber goods began to taper off just prior to 1930. By 1935 Japan had become self-sufficient in rubber products and imports were insignificant.

The production of rubber goods in Japan increased from less than 70 million yen in 1931 to 185 million yen in 1938. The military budget in 1937 included large amounts of rubber products and in each succeeding year enormous and increasing amounts of rubber equipment were ordered by the military authorities.

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Beginning in the late 1920's, Japan exported large amounts of finished rubber goods, consisting principally of rubber footwear, toys, and athletic

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Beginning in the late 1920's, a Japanese toy industry came into existence. Rubber was substituted for the more expensive celluloid and by 1937 production of rubber toys amounted to over 5½ million yen. This was a peak year in production, as subsequently military authorities required so much wartime equipment that the nonessential industries suffered. Furthermore, the large quantities of low-priced rubber toys shipped from Japan to world markets had a negative effect and although production did not decline to any great extent it reached 5 million yen in only 1 subsequent year, 1937. ^{1/}

The production in Japan of mechanical rubber goods, such as belts, beltings, battery boxes, and similar items, has been substantial, especially since 1934 when the mechanization of the Japanese Army became a Government project. The production of tubes and pipes (hose and tubing) increased from 2 million yen in 1932 to 5 million yen in 1936 and to more than 10 million yen in 1938. The production of beltings increased from less than 4½ million yen in 1932 to nearly 9 million yen in 1936 and to about 17 million yen in 1938. Production of other rubber goods, a large proportion of which were surgical and mechanical, increased from 10½ million yen in 1932 to 29 million yen in 1936 and to almost 40 million in 1938. Much of the mechanical rubber goods used for military purposes was produced in large plants rather than in the small poorly equipped plants producing footwear. The fact that the number of plants manufacturing rubber goods declined from 257 in 1930 to about 50 in 1939 and to only a reported 37 in 1941 indicates the consolidation of small plants and a trend to larger factories where government supervision could readily be administered. The need for mechanical and surgical goods of a high quality made necessary this consolidation.

Although the Government was concentrating its productive capacity on the manufacture of military items, it is known that following the invasion of the world's principal rubber producing areas the Japanese Government sponsored the production of large numbers of rubber balls and toys for distribution to the school children of the country. The purpose of this deviation from normal policy was, according to foreign experts, for the purpose of establishing in the children's minds the might of the Japanese Army and its ability to conquer foreign lands having raw materials needed by the Empire. (See table 2.)

^{1/} Another study in this series discusses the toy industry as a whole. See Japanese Trade Studies, Special Industry Analysis, No. 8 - Toys.

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Imports

All of the crude rubber consumed in Japan has had to be imported. The principal sources were the Straits Settlements, British Malaya, and the Netherlands Indies. Imports increased tenfold between 1914 and 1919 although they declined somewhat following that period. They began to increase again in the late 1920's and reached a peak in 1934 when shipments to Japan amounted to 120 million kin (72,000 tons). Rubber was selling at a very low price during 1933 and 1934; military requirements for finished rubber goods were mounting and substantial foreign markets still existed. The value of the rubber imported in 1934 was, however, only about 57 million yen whereas in 1937, although a smaller quantity, 106 million kin, was imported, it was valued at almost 100 million yen. Imports declined following 1937 and amounted to only 72 million kin in 1939. (See table 3.)

Imports of waste and scrap rubber increased considerably in the late 1930's, is shown in the tabulation which follows:

<u>Year</u>	<u>Quantity</u> (1,000 pounds)	<u>Value</u> (1,000 yen)
1938 -----	92	896
1937 -----	83	791
1936 -----	38	300
1935 -----	12	126
1934 -----	15	126
1933 -----	14	71

Japan's imports of finished rubber goods were never very large and following World War I imports declined to still lower levels. Since that time exports have consistently been larger than imports. The imports of tires amounted to about 4 million yen in 1930 and to only 10,000 yen in 1935. By comparison the production of tires increased from 7 million yen in 1930 to almost 22 million yen in 1935.

The ability of the Japanese to import samples of rubber goods from foreign countries and then to duplicate or imitate those articles made it possible for them rapidly to reduce imports. Imports after 1934 consisted largely of special types of tires, mechanical goods, or surgical equipment not produced within Japan. (See table 4.)

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Table 2.- Rubber goods: Production in Japan proper, ^{1/} by kinds, in specified years, 1933 to 1938

(In thousands of yen)

Kind	1933	1935	1937	1938
Soft rubber:	:	:	:	:
Tires:	:	:	:	:
Pneumatic	15,303	21,564	40,733	34,884
Solid	130	259	760	1,218
For bicycle and rickshaw	11,452	15,994	21,716	13,641
Other, including accessories	743	1,814	3,018	3,843
Tubes	4,199	6,252	8,861	6,873
Machinery parts	1,001	1,133	2,521	8,588
Shoes and other footgear	21,879	26,974	45,820	36,988
Toys	5,563	4,619	5,024	4,864
Tubes and pipes	2,989	4,422	7,560	10,551
Balting	5,662	8,263	13,872	17,083
Tabi (ground socks)	16,553	16,856	30,279	22,881
Other	16,061	23,113	44,011	38,388
Hard rubber:	:	:	:	:
Storage battery cases and parts	276	536	2,196	1,447
Other	1,447	2,084	5,618	6,395
Total	104,846	137,988	235,752	211,125

^{1/} In factories employing 5 or more operatives.^{2/} For airplanes, autos, and motor cycles.

Source: Japan Department of Commerce and Industry, Factory Statistics, 1938.

Table 7.- Rubber manufactures: Exports (domestic produce) from Japan proper, by principal markets and principal kinds, 1937 and 1938

Commodity and year	All countries	(Value in 1,000 yen)									
		Korea	Formosa	Kwantung	Manchuria	Netherlands Indies	Straits Settlements	British India ^b	China	United States	All other
Boots and shoes of tissues (with rubber soles)											
1937	21,741	4,415	-	4,074	2,543	1,474	910	598	329	26	7,372
1938	14,236	2/ 4,339	-	1,995	2,743	621	175	122	873	15	3,353
Gum tires and inner tubes for automobiles:											
1937	6,832	-	-	2,809	335	259	348	576	963	1	1,541
1938	4,459	-	-	2,200	288	139	3/	572	482	3/	778
Rubber tires and inner tubes for cycles:											
1937	5,027	-	-	459	530	1,232	775	477	678	5	871
1938	2,655	-	-	469	817	259	23	192	526	3/	369
Rubber toys:											
1937	4,279	-	-	49	55	209	67	736	54	1,357	1,752
1938	2,197	-	-	15	51	90	7	371	15	479	1,169
Belts and belting:											
1937	2,981	-	-	631	154	104	9	509	452	563	599
1938	2,268	-	-	923	326	121	3/	175	183	178	362
Boots and shoes of India rubber:											
1937	3,821	935	-	504	722	68	26	49	32	2	1,483
1938	2,515	947	-	292	612	26	6	14	76	2	340
Tabi or Japanese socks:											
1937	2,989	-	432	1,268	909	2	127	-	89	22	140
1938	1,832	-	366	487	651	1	14	-	177	9	127
Cords and twines:											
1937	1,573	-	-	58	30	50	18	15	284	16	1,202
1938	1,256	-	-	106	62	26	3	10	56	13	980
All other:											
1937	11,507	2,970	347	1,184	736	344	162	725	1,822	765	2,452
1938	12,717	3,983	458	2,285	1,415	243	23	436	1,394	369	2,111
Total rubber manufactures:											
1937	60,851	8,221	779	11,036	6,014	3,742	2,442	3,685	4,703	2,757	17,372
1938	44,135	9,269	824	8,772	6,965	1,526	251	1,892	3,782	1,065	9,789

^a/ Includes Burma prior to 1938.^b/ 5,881,000 yen in 1939, and 1,745,000 in 1940.^c/ Less than 500 yen.

Source: Annual Return of the Foreign Trade of Japan; Tables of Trade and Shipping of Chosen; Annual Return of the Trade of Taiwan.